

pixels as starting sample pixels to form (N+1) pieces of small image spaces each comprising a prescribed number of pixels obtained by one padding.

3. (Amended) The digital image padding method of claim 2, wherein operation values obtained by performing operation on values of significant pixels in an n-th ( $n=1, 2, \dots, N+1$ ) small image space are used as the padding pixel values for replacing the values of insignificant pixels in the n-th small image space.

6. (Amended) The digital image padding method of claim 1, wherein in said pixel rearrangement, sampling is continuously performed twice using first and second pixel rows as starting sample pixel rows by extracting pixels on every other pixel row in a vertical direction of the original image space to form first and second small image spaces each comprising a prescribed number of pixels obtained by first and second samplings, respectively.

7. (Amended) A digital image padding method in which padding of pixel values is performed to an interlaced digital image signal forming an original image space including an image having an arbitrary shape and containing significant pixels and insignificant pixels, said method comprising:

dividing the original image space into a first small image space comprising pixels on odd-numbered pixel rows in the original image space and a second small image space comprising pixels on even-numbered pixel rows in the original image space; and

generating first padding pixel values from values of significant pixels in the first small image space and replacing values of insignificant pixels in the first small image space with the first padding pixel values, and generating second padding pixel values from values of significant pixels in the second small image space and replacing values of insignificant pixels in the second small image space with the second padding pixel values.

Please add new claims 22-34 as follows:

22. The digital image padding method of claim 1, wherein in said pixel rearrangement, a small image space containing only pixels of a same field is generated by grouping plural pixels containing a frame which is the original image space.

23. A computer readable data recording medium for storing a program operable to make a computer perform padding of pixel values to a digital image signal forming an original image space including an image having an arbitrary shape and containing significant pixels and insignificant pixels, said computer readable data recording medium comprising:

computer readable program code operable to cause the computer to perform a pixel rearrangement in which plural pixels in the original image space are grouped to form plural small image spaces each comprising pixels of the same group so that a pixel value correlation within the small image spaces becomes higher than a pixel value correlation within the original image space; and

computer readable program code operable to cause the computer to perform a pixel padding in which values of insignificant pixels in each of the small image spaces obtained by the pixel rearrangement are replaced with padding pixel values generated on the basis of the significant pixel values in each of the small image spaces.

24. The computer readable data recording medium of claim 23, wherein said computer readable program code operable to cause the computer to perform the pixel rearrangement is further operable to cause the computer to perform sampling by extracting pixels every  $(N + 1)$ -th ( $N$  is a positive integer) pixel in a prescribed direction of the original image space  $(N + 1)$  times by using first to  $(N + 1)$ -th pixels as starting samples to form  $(N+1)$  pieces of small image spaces each comprising a prescribed number of pixels obtained by one padding.

25. The computer readable data recording medium of claim 24, wherein operation values obtained by performing operation on values of significant pixels in an n-th ( $n=1, 2, \dots, N+1$ ) small image space are used as the padding pixel values for replacing the values of insignificant pixels in the n-th small image space.

26. The computer readable data recording medium of claim 23, wherein said computer readable program code operable to cause the computer to perform the pixel rearrangement is further operable to cause the computer to perform sampling such that the sampling is continuously performed twice using first and second pixel rows as starting sample pixel rows by extracting pixels on every other pixel row in a vertical direction of the original image space to form first and second small image spaces each comprising a prescribed number of pixels obtained by first and second samplings, respectively.

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27. The computer readable data recording medium of claim 23, wherein said computer readable program code operable to cause the computer to perform the pixel rearrangement is further operable to generate a small image space containing only pixels of a same field by grouping plural pixels containing a frame which is the original image space.

28. A computer readable data recording medium for storing a program operable to make a computer perform padding of pixel values to an interlaced digital image signal forming an original image space including an image having an arbitrary shape and containing significant pixels and insignificant pixels, said computer readable data recording medium comprising:

computer readable program code operable to cause the computer to divide the original image space into a first small image space comprising pixels on odd-numbered pixel rows in the original image space and a second small image space comprising pixels on even-numbered pixel rows in the original image space; and

computer readable program code operable to cause the computer to generate first padding pixel values from values of significant pixels in the first small image space and replacing values of

insignificant pixels in the first small image space with the first padding pixel values, and generate second padding pixel values from values of significant pixels in the second small image space and replacing values of insignificant pixels in the second small image space with the second padding pixels values.

29. A digital image padding apparatus operable to perform padding of pixel values to a digital image signal forming an original image space including an image having an arbitrary shape and containing significant pixels and insignificant pixels, said digital image padding apparatus comprising:

a pixel rearrangement unit operable to group plural pixels in the original image space to form plural small image spaces each comprising pixels of the same group so that a pixel value correlation within the small image spaces becomes higher than a pixel value correlation within the original image space; and

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cont a pixel padding device operable to replace values of insignificant pixels in each of the small image spaces obtained by said pixel rearrangement unit with padding pixel values generated on the basis of the significant pixel values in each of the small image spaces.

30. The digital image padding apparatus of claim 29, wherein said pixel rearrangement unit is further operable to perform sampling by extracting pixels every  $(N + 1)$ -th ( $N$  is a positive integer) pixel in a prescribed direction of the original image space  $(N + 1)$  times by using first to  $(N + 1)$ -th pixels as starting samples to form  $(N + 1)$  pieces of small image spaces each comprising a prescribed number of pixels obtained by one padding.

31. The digital image padding apparatus of claim 30, wherein operation values obtained by performing operation on values of significant pixels in an  $n$ -th ( $n = 1, 2, \dots, N + 1$ ) small image space are used as the padding pixel values for replacing the values of insignificant pixels in the  $n$ -th small image space.

32. The digital image padding apparatus of claim 29, wherein said pixel rearrangement unit is further operable to perform sampling such that the sampling is continuously performed twice using first and second pixel rows as starting sample pixel rows by extracting pixels on every other pixel row in a vertical direction of the original image space to form first and second small image spaces each comprising a prescribed number of pixels obtained by first and second samplings, respectively.

33. The digital image padding apparatus of claim 29, wherein said pixel rearrangement unit is further operable to generate a small image space containing only pixels of a same field by grouping plural pixels containing a frame which is the original image space.

34. A digital image padding apparatus operable to perform padding of pixel values to an interlaced digital image signal forming an original image space including an image having an arbitrary shape and containing significant pixels and insignificant pixels, said digital image padding apparatus comprising:

a device operable to divide the original image space into a first small image space comprising pixels on odd-numbered pixel rows in the original image space and a second small image space comprising pixels on even-numbered pixel rows in the original image space; and

a device operable to generate first padding pixel values from values of significant pixels in the first small image space and replacing values of insignificant pixels in the first small image space with the first padding pixel values, and generate second padding pixel values from values of significant pixels in the second small image space and replacing values of insignificant pixels in the second small image space with the second padding pixels values.

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